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BOTANICAL GAZETTE

JANUARY, 1901

NEW OR LITTLE KNOWN NORTH AMERICAN TREES. II.

CHARLES S. SARGENT.

Gleditsia Texana, n. sp.—Unarmed. Leaves puberulous, or tomentose toward the base of the slender rachis, ultimately becoming nearly glabrous, 12 to 22-foliolate; leaflets oblong-ovate, often somewhat falcate, rounded or acute, and apiculate at the apex, obliquely rounded at the base, obscurely crenulate-serrate, short-petiolulate, thick and firm, dark green and lustrous on the upper surface, pale on the lower surface, $\frac{1}{2}$ to 1 in. long. Staminate flowers orange-yellow, in slender racemes 3 to 4 in. long; calyx-lobes ovate, acute, villous, rather shorter than the petals; stamens exserted. Pistillate flowers unknown. Legume straight, compressed, without pulp, rounded or short-pointed at the apex, abruptly rounded at the broad base, thin-walled, dark chestnut-brown, puberulous, only slightly thickened on the margins, many-seeded, 4 to 5 in. long and 1 in. wide. Seeds oval, compressed, dark chestnut-brown and lustrous, nearly $\frac{1}{2}$ in. long.

A tree 100 to 120 feet in height, with a trunk rarely more than $2\frac{1}{2}$ feet in diameter covered with pale smooth bark, and upright slightly spreading branches. Flowers at the end of April. Fruit ripens and falls late in the autumn.

High rather dry bottom-lands of the Brazos river near Brazoria, Texas, in dense woods composed principally of *Gleditsia triacanthos*, *Platanus occidentalis*, and *Populus deltoidea*.

First made known from legumes picked up from the ground several years ago by Mr. N. S. Plank, and later by collections made by Mr. B. F. Bush in 1899 and 1900.

Gleditsia Texana is an interesting addition to the North American silva. From *Gleditsia triacanthos*, which it resembles in foliage and in the staminate flowers, it is distinguished by its spineless branches and smoother pale bark. From all other species of the genus it differs in the legume. This resembles those of the many-seeded species, of which *Gleditsia triacanthos* is the type, in its general form and color, and in its numerous seeds. It differs from them in its much smaller size, thin compressed walls with thinner margins, and in the absence of the sweet pulp which surrounds their thicker lighter-colored seeds. It differs in form from the compressed pulpless legume of *Gleditsia aquatica*, and in its more numerous seeds. Like the legume of that species, the legume is frequently seedless.

Known only in a single grove in a comparatively small number of individuals, and sharing something of the character of each of the other American species which both grow near it, the hypothesis of a natural hybrid between those species might be considered, were it not for the fact that the fruit of *Gleditsia triacanthos* is nearly half-grown in this region before the flowers of *Gleditsia Texana* open, while the flowers of *Gleditsia aquatica* do not open until ten or twelve days after those of *Gleditsia Texana* have fallen.

Crataegus Engelmanni, n. sp.—Leaves broadly obovate or rarely elliptical, rounded and often short-pointed at the apex, gradually narrowed below into short glandular pilose petioles, coarsely glandular-serrate with incurved teeth usually only above the middle and generally only at the apex, coriaceous, dark green, lustrous and roughened on the upper surface with short rigid pale hairs, pale on the lower surface, pilose above and below on the slender midribs and on the thin obscure primary veins and veinlets, 1 to 1½ in. long and ½ to 1 in. broad; stipules linear-lanceolate, light red, ⅓ in. long, caducous. Flowers ¾ in. in diameter, in 8 to 12-flowered wide slender-branched cymes thickly coated with long pale hairs; bracts linear-lanceolate, tomentose or villous, often ½ in. long; calyx tomentose, villous or nearly glabrous, the lobes narrow, acuminate, entire, glabrous on the outer surface and usually more or less pubescent on the inner surface, reflexed after anthesis, often deciduous before the ripening of the fruit; stamens ten; filaments slender;

anthers small, rose-color; styles two or three. Fruit globose, about $\frac{1}{3}$ in. in diameter, bright orange-red with a yellow cheek and thin dry green flesh; tube of the calyx prominent, the cavity broad in proportion to the size of the fruit, shallow; nutlets two or three, thick, prominently ribbed on the back with high rounded ridges, $\frac{1}{4}$ in. long.

A tree from 15 to 20 feet in height with a trunk 5 to 6 inches in diameter covered with dark brown scaly bark, wide-spreading usually horizontal branches forming a low flat-topped or a rounded head, and slightly zigzag branchlets marked with large scattered white lenticels, at first clothed with pale hairs, becoming nearly glabrous and reddish-brown during the first season and lighter-colored and gray, or gray tinged with red during their second year, and armed with remote slender straight or slightly curved chestnut-brown spines $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Flowers from the end of April (Augusta, Ga.) to the end of May (Missouri). Fruit ripens early in November.

Dry hillsides and slopes, often on limestone; less frequently along the low margins of meadows and roadsides. Kimmswick, Missouri, *Dr. George Engelmann*, May 1860; Pacific, Missouri, *George W. Letterman*, 1881; southern Missouri, *B. F. Bush* (nos. 86 and 19), 1898, 1899; West Nashville, Tennessee, *T. G. Harbison*, May 1899; Tuscaloosa, Alabama, *T. G. Harbison*, May 1899; Gunterville, Alabama, *T. G. Harbison*, June 1899; Rome, Georgia, *C. Boynton*, May 4, 1899; Birmingham, Alabama, *C. Boynton*, January and July 1899; Washington Road near Augusta, *A. Cuthbert* and *C. S. Sargent*, April 1900.

Well distinguished from *Crataegus Crus-galli*, with which for many years it has been confounded, by its smaller thinner leaves roughened above by rigid hairs and pilose on the lower surface, more prominent primary veins and villous or tomentose branchlets and cymes, *Crataegus Crus-galli* in all its forms, as I now understand it, being perfectly glabrous, with veins which, except in the case of leaves on the most vigorous shoots, are usually almost entirely within the parenchyma; by its smaller brighter red and yellow fruit; and by its less numerous and more slender spines.

Crataegus Canbyi, n. sp.—Glabrous. Leaves oblong-oval to ovate or rarely obovate, pointed or occasionally rounded at the

apex, cuneate and entire at the base, coarsely and doubly serrate above the middle with glandular incurved teeth, often more or less deeply lobed on vigorous leading shoots with broad acute lobes, coriaceous, dark green and lustrous above, pale and dull below, 2 to $2\frac{1}{2}$ in. long and 1 to $1\frac{1}{2}$ in. wide, or on leading shoots often 3 to 4 in. long and 2 in. broad, the thick midribs and four or five pairs of remote primary veins raised and conspicuous on the lower surface and impressed on the upper surface; petioles stout, grooved and glandular on the upper side with scattered dark red persistent glands, more or less winged above by the decurrent base of the leaf-blades, red below the middle, $\frac{1}{2}$ to $\frac{3}{4}$ in. long; stipules oblong-obovate to linear-lanceolate, glandular-serrate, $\frac{1}{2}$ in. long. Flowers $\frac{5}{8}$ in. in diameter, in loose many-flowered long-branched compound cymes; calyx-lobes narrow, acuminate, serrate with slender teeth tipped with small red glands, nearly entire, reflexed and closely appressed on the fruit, often deciduous before maturity; stamens ten or rarely twelve or thirteen; filaments slender, elongated; anthers small, rose-color; styles three to five. Fruits oblong to subglobose, full and rounded at the ends, depressed at the insertion of the stalks, flesh red, thick, juicy, and succulent, $\frac{1}{2}$ to $\frac{5}{8}$ in. long, drooping on the slender elongated peduncles, lustrous dark crimson, punctate with occasional large pale dots; calyx cavity deep and narrow; nutlets three to five, $\frac{1}{4}$ in. long, light chestnut-brown, prominently ridged on the back with broad rounded ridges.

A bushy much-branched tree 20 to 25 feet in height with a short stout trunk often a foot in diameter covered with dark brown scaly bark; branches stout, erect, wide-spreading, at first dark green and marked with numerous pale raised lenticels, slightly zigzag, soon becoming light orange-brown and lustrous, gray during their second year, and armed with few stout chestnut brown spines varying from $\frac{3}{4}$ to $1\frac{1}{2}$ in. in length. Flowers the middle of May; the fruit ripens early in October and falls in early winter.

Hedges and thickets near Wilmington, Delaware; Pennsylvania, meadows of Tohickon Creek, Quakertown, *C. D. Fretz*,

1899 and 1900; Tinicum island, Delaware county, *B. H. Smith*, 1900.

To be distinguished from the related *Crataegus Crus-galli* by its oblong usually pointed leaves with veins raised and prominent on the lower surface, by its short infrequent spines, by the habitual appearance of the flowers ten days before those of that species open in the same region, and by the red juicy flesh of the fruit. First noticed in October 1898, by Mr. W. N. Canby of Wilmington, Delaware, who permits the association of his name with this handsome tree.

***Crataegus Peoriensis*, n. sp.**—Leaves obovate, short-pointed or occasionally rounded and sometimes slightly irregularly lobed at the broad apex, gradually narrowed below, sharply and often doubly glandular-serrate usually only above the middle, glabrous with the exception of a few scattered pale hairs near the base of the upper surface of the midribs, thick and firm, with four or five pairs of thin primary veins raised and conspicuous below, deeply impressed above and running very obliquely from the slender midrib to the end of the leaf, dark green and very lustrous on the upper surface, pale on the lower surface, bright bronze color as they unfold, $\frac{1}{2}$ to 2 in. long, $\frac{3}{4}$ to 1 in. wide, and on vigorous leading shoots frequently a third larger and occasionally laterally lobed; petioles broad, deeply grooved, more or less winged and slightly glandular above the middle, and covered early in the season with short white scattered hairs; stipules glandular, linear-lanceolate, or on vigorous shoots lunate and $\frac{1}{2}$ to 1 in. long. Flowers cup-shaped, $\frac{1}{2}$ in. in diameter when fully expanded, in broad loose slender-stemmed many-flowered corymbs, their bracts and bractlets linear, conspicuously glandular, caducous; calyx glabrous, the cup deep and narrow; calyx-lobes narrow, acuminate, entire or irregularly glandular-serrate with minute stalked dark red glands, pubescent below the middle on the upper surface, spreading nearly at right angles to the cup when the flowers open, persistent on the fruit; stamens ten; filaments elongated, slender; anthers small, rose-color; styles usually two or three. Fruit oblong to obovate, full and rounded at the ends, slightly depressed at the insertion of the peduncle, bright scarlet, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, with thick

nearly white firm flesh; nutlets two, or rarely three, thick, prominently ridged, about $\frac{1}{4}$ in. long.

A tree 20 or 25 feet in height with a trunk sometimes a foot in diameter covered with dark brown scaly bark, stout spreading branches forming a broad flat-topped head, and slightly zigzag, glabrous branchlets green when they first appear, orange-brown and lustrous during their first season, growing lighter during their second year, and armed with straight or slightly curved very slender dull chestnut-brown spines 2 to $2\frac{1}{2}$ in. long. Flowers from the middle to the end of May. Fruit ripens early in October but when gathered retains its shape and color until December.

In open woods along the moist borders of streams or depressions in the prairie and on hillsides in clay soil. Short and Peoria counties, Illinois, where it was discovered by *Mr. Virginus H. Chase* of Wady Petra, Illinois, September 1897 (nos. 48, 446, 449, 481, 485).

Crataegus pratensis, n. sp.—Leaves obovate-oblong, pointed or rounded at the apex, gradually tapering below and decurrent nearly to the base of the short slender petioles, sharply and often doubly serrate usually only above the middle with teeth tipped with minute dark red caducous glands, more or less deeply divided above into short broad acute lobes, with slender midribs and narrow oblique primary veins deeply impressed on the upper side and raised and prominent below, bright bronze-yellow and coated on both surfaces with short pale hairs when unfolding; at maturity glabrous, thick and firm, dark green and lustrous on the upper surface, pale on the lower surface, $\frac{1}{2}$ to 2 in. long, 1 to $1\frac{1}{2}$ in. broad, and on vigorous shoots often 3 in. long and $2\frac{1}{2}$ in. broad; stipules lunate, stalked, coarsely glandular-serrate, on vigorous shoots often 1 in. in length. Flowers $\frac{1}{3}$ in. in diameter, in broad loose thin-branched many-flowered compound pubescent ultimately glabrous cymes; calyx coated on the outer surface with matted white hairs, the cavity deep and narrow; calyx-lobes acute, coarsely glandular-serrate, spreading or more or less reflexed at anthesis, often deciduous

from the fruit ; stamens ten ; filaments slender, elongated ; anthers small, rose color ; styles two or three. Fruit globose, pendent on the elongated peduncles, bright scarlet, $\frac{1}{3}$ in. in diameter, with thin dry yellow flesh ; nutlets usually two or three, broad and thick, full and ridged on the back, about $\frac{1}{4}$ in. long.

A tree occasionally 20 feet in height, with a trunk 3 to 7 in. in diameter covered with dark brown scaly bark and frequently armed with long slender much-branched ashy gray spines, wide-spreading branches forming a broad round-topped head, slender glabrous branchlets marked with white lenticels, at first green, becoming light chestnut-brown and lustrous during their first summer, and furnished with slender straight or slightly recurved chestnut-brown spines 2 to $2\frac{1}{2}$ in. long. Flowers from the middle to the end of May. Fruit ripens the first of October and falls in November.

Open woods near the banks of small streams in the prairie region of Stark and Peoria counties, Illinois, where it was discovered by *Mr. Virginius H. Chase* in May 1898. Rare and local. Trees which appear to be of the same species were found by *Mr. B. F. Bush* near Swan, Taney county, Missouri, in October 1889 ; and later by *Professor William Trelease* and myself.

Crataegus submollis, n. sp. (*Crataegus tomentosa* Emerson, Trees Mass. 435. 1846 [not Linnaeus] ; ed. 2, 494, *pl.* —. 1875.—*Crataegus coccinea mollis* Brunet, Cat. Vég. Lig. Can. 25. 1867 [in part, not Torrey & Gray] ; Watson & Coulter, Gray's Man. ed. 6. 165. 1890 [in part].—*Crataegus subvillosa* Macoun, Cat. Can. Pl. 1: 147. 1888 [in part, not Torrey].—*Crataegus mollis* Sargent, Silva N. Am. 4: 99. *pl.* 182. 1892 [in part, not Scheele] ; Koehne, Herb. Dendr. 232.—*Crataegus coccinea subvillosa* Lange, Rev. Spec. Gen. Crataegi 31. *fig.* —).—Leaves ovate, acute, cuneate at the base, sharply serrate with gland-tipped teeth, slightly divided above the middle into three or four pairs of acute lobes, membranaceous, pale yellow-green and roughened on the upper surface with short closely appressed rigid hairs, paler and at first coated below with dense hoary tomentum, at maturity puberulous only on the prominent midribs and remote

slightly raised veins, $2\frac{1}{2}$ to 4 in. long and 2 to $2\frac{1}{2}$ in. wide; petioles slender, slightly grooved and glandular on the upper side, winged above by the decurrent bases of the leaves, tomentose, often tinged with red below the middle and 1 to 2 in. long; stipules linear-lanceolate or lunate on vigorous shoots, tomentose, glandular-serrate, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, caducous. Flowers 1 in. in diameter, in broad many-flowered compound tomentose cymes, their bracts and bractlets glandular-serrate with dark glands; calyx tomentose, its cup deep and broad; calyx-lobes acute from a broad base, tomentose, glandular with small stalked persistent red glands, usually wide-spreading at anthesis and persistent, erect and much enlarged on the fruit; stamens ten; filaments slender; anthers small, pale yellow; styles three to five. Fruit pear-shaped with yellow subacid dry flesh, about $\frac{3}{4}$ in. long, gracefully drooping on the slender elongated puberulous branches of the cymes, bright orange-red, lustrous, marked with occasional pale lenticels, puberulous toward the base; nutlets usually five, rounded and slightly ridged on the back, a third of an inch long. Flowers from the 20th to the end of May. Fruit ripens and falls from the first to the middle of September.

A tree 25 to 30 feet in height with a trunk occasionally a foot in diameter covered with light brown scaly bark, and wide-spreading branches, or often a tall intricately branched shrub, and with branchlets at first green and coated with hoary tomentum, becoming before midsummer dark orange-brown, and during their second year lustrous and pale gray-green to orange-brown, glabrous and very lustrous, slightly zigzag and armed with slender bright chestnut-brown straight or more or less incurved spines $2\frac{1}{2}$ to 3 in. long.

On rich hillsides, along the margins of roads, and sometimes in low moist soil, from the neighborhood of Montreal, *J. G. Jack*, 1899, to Orono and Dover, Maine, *M. L. Fernald*, May 1887, and August 1896; Gerrish island, Maine, *J. G. Jack*, September 1899; and to Jamaica Plain and Milton, Massachusetts.

Confounded by me in the fourth volume of *The Silva of North America*, where it is well figured, with *Crataegus mollis* of Scheele, a common tree

from Michigan to Nebraska and Missouri. *Crataegus submollis* differs from that species in its smaller and less deeply lobed cuneate leaves, which are not truncate or cordate even on vigorous leading shoots; in its ten, not twenty, stamens; smaller, less downy fruit on much longer, more slender and drooping peduncles; in its more zigzag orange-colored branchlets, those of *Crataegus mollis* being of a bright chestnut-brown color during the first summer; longer and much more numerous spines; and in its smaller size.

Crataegus dilatata, n. sp.—Leaves ovate from a broad, truncate, cordate, or slightly rounded base, coarsely irregular glandular-serrate, unequally lobed usually with two or three pairs of acute lateral lobes, membranaceous, with slender midribs and four or five pairs of thin primary veins, when the flowers open roughened on the upper surface with short ridged white hairs, light yellow-green, and conspicuously plicate, at maturity dark green, 2 to $2\frac{1}{2}$ in. long, usually as wide as long, and on vigorous leading shoots often 4 to $4\frac{1}{2}$ in. long and usually rather broader than long; petioles slender, terete, glandular, at first more or less villous but soon glabrous, 1 to $1\frac{1}{2}$ in. long, dark red toward the base; stipules linear-lanceolate and on vigorous shoots lunate and foliaceous, glandular with dark red glands, $\frac{1}{2}$ in. long, caducous. Flowers 1 to $1\frac{1}{8}$ in. in diameter when expanded, in broad, open, nearly glabrous, villous or tomentose compound cymes, the bracts and bractlets, like the bud-scales, glandular with stalked red glands; calyx villous with soft white deciduous hairs, the cup broad and shallow; calyx-lobes broad, acuminate, coarsely glandular-serrate, much enlarged and spreading on the fruit, and bright red on the upper surface below the middle; stamens 20; filaments slender, elongated; anthers large, rose color; styles usually five, surrounded at the base by small tufts of white hairs. Fruit subglobose with sweet, yellow, thick flesh, $\frac{3}{4}$ in. in diameter, bright scarlet, punctuate with minute dark spots; nutlets five, comparatively small, prominently ridged on the back, about $\frac{1}{4}$ in. long.

A tree sometimes 20 feet in height, with a tall straight trunk, wide-spreading branches forming a broad round head, or bushy with numerous spreading stems and slender, glabrous, slightly zigzag branchlets marked with large pale lenticels, at first

dark green tinged with red, becoming light chestnut-brown and very lustrous during their first season, dark dull gray in their second year, and armed with stout straight chestnut-brown spines 1 to 2 in. long, or sometimes nearly spineless. Flowers about May 20. Fruit ripens and falls early in September.

Rich hillsides and borders of salt marshes. Revere, Massachusetts, *C. E. Faxon*, May 1884; Somerset, Massachusetts, *Miss L. H. Handy*, May 1899; Ipswich, Massachusetts, *John Robinson*, May 1900; Tiverton, Rhode Island, *C. S. Sargent*, August 1900; Middlebury, Vermont, *Ezra Brainard*, 1900.

It is possible that this is one of the plants cultivated in Europe as *Crataegus coccinea*, but I have not been able to find any trace of it as a garden plant.

CRATAEGUS HOLMESIANA Ashe, Jour. Elisha Mitchell Sci. Soc. 16²: 78. 1900.—Leaves ovate, pointed, rounded, cuneate or on vigorous leading shoots sometimes truncate or cordate at the base, sharply and often irregularly doubly serrate with sharp teeth tipped at first with prominent dark red caducous glands, usually slightly lobed with from three to five pairs of acute lateral lobes, membranaceous, pale yellow-green above, pale and glabrous below, scabrous on the upper surface with short rigid white hairs when the flowers open, at maturity becoming thick, firm, and nearly smooth, 2 to 3 in. long and 2 to 2½ in. wide, with prominent midribs and five or six pairs of stout primary veins deeply impressed above; petioles slender, terete, slightly grooved and glandular on the upper surface with persistent dark glands, and 1 to 1½ in. long; stipules lunate, glandular-serrate, small, caducous. Flowers cup-shaped, ¾ in. in diameter when fully expanded, in loose many-flowered compound glabrous cymes on slender elongated pedicels; calyx narrow, glabrous, tinged with red, its cup broad and shallow; calyx-lobes acute, glandular-serrate or rarely nearly entire, persistent and erect on the fruit; stamens five or occasionally six, seven, or eight; filaments stout, spreading; anthers large, dark purple-red; styles usually three. Fruit pendulous, oblong, crowned with the erect conspicuous calyx-lobes, crimson,

lustrous, $\frac{1}{2}$ to $\frac{3}{4}$ in. long, with thin dry yellow flesh of disagreeable flavor; nutlets prominently ribbed, light chestnut-brown, about $\frac{1}{4}$ in. long.

A tree occasionally 30 feet in height with a well developed trunk 12 to 15 inches in diameter, covered with pale or nearly white scaly bark, stout upright branches forming an open irregular or more rarely a broad compact head, stout chestnut-brown branchlets and straight usually infrequent spines $1\frac{1}{2}$ to 2 in. long. Flowers from the 5th to the middle of May. Fruit ripens and falls early in September.

From the Province of Quebec, *J. G. Jack*, and Ontario, *D. W. Beadle*, to Maine, Gardner, *Alice M. Richards*, Ellsworth, *Mrs. M. A. Clarke*, North Berwick, *Mrs. John Parlin*, Acworth, *R. Hoffman*; New Hampshire, Holderness, *C. E. and W. Faxon*, Haverhill, *E. Faxon*, Troy, *Rand and Robinson*; Vermont, Charlotte, *F. H. Horsford*, Ferrisburg and West Addison, *Ezra Brainard*, Bennington, Rutland, North Pownal, and Fairhaven, *W. W. Eggleston*, Rutland, *C. S. Sargent*; Massachusetts, Berlin and West Boylston, *J. G. Jack*, South Lancaster, *C. S. Sargent*, Lanesboro, *C. E. Faxon*; New York, "N. N. Y." in Herb. Gray, without date, Fort Crown Point, *Ezra Brainard*, Rochester, *C. C. Laney*; Rhode Island, Tiverton, *Miss Alice Sargent*; and Pennsylvania, Sellersville, *Dr. C. D. Fretz*.

Crataegus Holmesiana inhabits rich moist hillsides and the borders of streams and swamps, and is always easily recognized by the pale bark of the stem, the distinctly yellow color of the leaves, the small cup-shaped flowers with few stamens, and by the large oblong early fruit. It is very abundant in the upland pastures of Worcester county, Massachusetts, and along the banks of Branch creek at Sellersville, Pennsylvania. It is one of the largest species of New England. I have been unable to discover that this handsome tree, which has probably always been confounded with *Crataegus coccinea*, has ever been an inhabitant of gardens, unless the figure of *Crataegus coccinea*, published in 1835 in the *Botanical Magazine* (pl. 3434) was intended to represent this species.

CRATAEGUS COCCINEA Linnaeus.—The name *Crataegus coccinea* was first used by Linnaeus in the first edition of *Species Plantarum* 1:476. 1753. His description of this species, "*Crataegus*

foliis ovatis repando-angulatis serratis glabris," had, however, appeared in 1737 in *Hortus Cliffortianus*. In both works a species of Plukenet (Phyt. Bot. *pl.* 46. *f.* 4) and a species of Miller (Cat. Pl. Hort. Angl. *pl.* 13. *f.* 1) were referred by Linnaeus to his *Crataegus coccinea*. Plukenet's plant is preserved in the British Museum. It belongs to the *mollis* group, but the specimen is so meager that I have been unable to identify it. Miller's figure perhaps represents a species of the *mollis* group, but it is certainly not the same plant as the one figured by Plukenet, and I cannot identify it. The only representative of *Crataegus coccinea* in Linnaeus's herbarium, and so labeled by him, is an entirely different plant from either of those represented in Plukenet's or Miller's figures which Linnaeus had referred to his species. Moreover, the specimen is not glabrous but villous on the leaves, corymb, and young branches, and the leaves can hardly be described as "*repando-angulatis serratis*." The Linnaean specimen is not dated, and it is therefore possible that it was not from this specimen but from Plukenet's or Miller's figure that Linnaeus drew his description of *Crataegus coccinea*. There seems in this case, therefore, but one of two methods to follow in considering this name; either the specimen in Linnaeus's herbarium must be ignored, and the name dropped entirely because it was given to a species founded on two distinct plants, neither of which can be satisfactorily determined; or the specimen in the Linnaean herbarium labeled *Crataegus coccinea* by Linnaeus himself must be accepted as the type of this species. In view of the fact that the name *Crataegus coccinea* is one of the best known of the names which have been applied to American species of the genus, and as the plant labeled *Crataegus coccinea* by Linnaeus is now known to be a common and widely distributed species in the north Atlantic coast region, it is perhaps best to consider the specimen in the Linnaean Herbarium as the type of *Crataegus coccinea*, which can be described as follows:

Crataegus coccinea Linnaeus.—Leaves elliptical or on vigorous shoots mostly semiorbicular, acute or acuminate, divided above the middle into numerous acute coarsely glandular-serrate

lobes, cuneate and finely glandular-serrate below the middle and often quite entire toward the base, with slender midribs and remote primary veins arcuate and running to the points of the lobes, at the flowering time membranaceous, coated on the upper surface and along the upper surface of the midribs and veins with short soft white hairs, at maturity thick, coriaceous, dark green and lustrous on the upper surface, paler on the lower surface, glabrous or nearly so, $1\frac{1}{2}$ to 2 in. long and 1 to $1\frac{1}{2}$ in. wide, with slender glandular petioles $\frac{3}{4}$ to 1 in. long, slightly grooved on the upper surface, often dark red toward the base, and like the young branchlets villous with pale soft hairs; stipules lanceolate to oblanceolate, conspicuously glandular serrate with dark red glands, $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ in. in diameter when fully expanded, in broad many-flowered compound tomentose cymes; bracts and bractlets linear-lanceolate, coarsely glandular-serrate, caducous; calyx tomentose, the lobes lanceolate, glandular-serrate, nearly glabrous or tomentose, persistent, wide-spreading or erect on the fruit, dark red above at the base; stamens ten; anthers yellow; styles three or four. Fruit subglobose, occasionally rather longer than broad, dark crimson, marked with scattered dark dots, about $\frac{1}{2}$ in. in diameter, with thin sweet dry yellow flesh; nutlets three or four, about $\frac{1}{4}$ in. long, conspicuously ridged on the back with high grooved ridges.

A low bushy tree occasionally 20 feet in height with a short trunk 8 to 10 in. in diameter, or more frequently shrubby and forming wide dense thickets, and with stout more or less zigzag branches bright chestnut-brown and lustrous during their first year, ashy gray during their second season and armed with many stout chestnut-brown straight or curved spines 1 to $1\frac{1}{2}$ in. long. Flowers late in May. Fruit ripens and falls toward the end of October usually after the leaves.

Slopes of hills and the high banks of salt marshes usually in rich well-drained soil, Essex county, Massachusetts, *John Robinson*, 1900; Gerrish island, Maine, *J. G. Jack*, 1899-1900; Brunswick, Maine, *Mrs. Kate Furbish*, May 1899; Newfoundland, *A. C. Waghorne*, 1894.

CRATAEGUS COCCINEA rotundifolia.—With *Crataegus coccinea* as described above there often grow in the same thickets plants which differ from it only in the less development of the hairs on the leaves, young branches, and corymbs. Some of these plants are entirely glabrous with the exception of a few short hairs on the upper surface of the young leaves, while others show all degrees of variation in the development of their villous covering. The synonymy of this form, which cannot be considered more than a variety, is as I understand it as follows:

Crataegus rotundifolia Moench, Bäume Weiss. 29. *pl.* 1. 1785.

Mespilus glandulosa Ehrhart, Beitr. 3: 20. 1788.

Crataegus glandulosa Aiton, Hort. Kew. 2: 168. 1789.

Crataegus horrida Medicus, Gesch. Bot. 1793.

Mespilus rotundifolia Du Roi, Harbk. Baumz., 2: 607. 1795.

Crataegus coccinea Lindley, Bot. Reg. 23: *pl.* 1957. 1837 (not Linnaeus).

Crataegus coccinea macracantha Sargent, Silva N. Am. 4: 96. 1892, in part, not Lindley.

Crataegus coccinea rotundifolia is one of the commonest New England forms, ranging southward to eastern Pennsylvania, Easton, *T. C. Porter*, 1894, Stroudsburg, *W. M. Canby*, 1900, and Delaware, Fairhurst, *W. M. Canby*, 1900; and westward to the region of the Great Lakes. Its northern and western range, however, is still imperfectly known, as there are evidently some distinct forms of this group which are still confounded with *Crataegus coccinea* and this variety. All the species of the group, which has been curiously overlooked by American botanists, have thick coriaceous dark green and lustrous mature leaves, flowers with ten or nearly twenty stamens and pale yellow anthers, and globose or subglobose scarlet fruit of medium size with three or four nutlets.

Crataegus Jonesae, n. sp. (*Crataegus coccinea macracantha* Rand & Redfield, Fl. Mt. Desert Island 98. 1894, not Dudley).—Leaves elliptical, pointed, cuneate and decurrent at the base, sharply and doubly serrate and usually lobed above the middle with numerous small acute lobes, coriaceous, dark green and lustrous above, pale and puberulous below, especially on the stout midribs and broad remote primary veins, deeply impressed above, 3 to 4 in. long and 2 to 3 in. broad, at first coated above with soft pale caducous hairs and glandular with small dark red deciduous glands on the teeth; petioles stout, more or less

broadly winged above, deeply grooved, villous, tinged with red below the middle, frequently twisted at midsummer, thus bringing the lower surface of the leaf-blades to the light, $1\frac{1}{2}$ to 2 in. long; stipules linear-lanceolate, entire or coarsely glandular-serrate, $\frac{1}{2}$ in. long, dark green fading red. Flowers bad-smelling, 1 in. in diameter when fully expanded, in loose lax compound many-flowered long-branched tomentose cymes; calyx tomentose, the cup broad and shallow; calyx-lobes linear-lanceolate, entire, tomentose, elongated, persistent and closely appressed on the fruit; stamens ten; filaments slender, elongated; anthers large, pale rose-color; styles two or usually three. Fruit pendulous in loose clusters, oblong to oblong-obovate, full and rounded at the base, $\frac{3}{4}$ to 1 in. long, $\frac{3}{4}$ in. broad, lustrous, bright carmine red, punctate with few dark spots, flesh thick mealy sweet and yellow; nutlets three or rarely two, thick, dark-colored, conspicuously ridged on the back, about seven-sixteenths of an inch long.

A tree occasionally 20 feet in height with a tall trunk a foot in diameter covered with dark brown scaly bark, or in the immediate vicinity of the sea often shrubby with numerous stout spreading stems forming a broad massive bush, and stout wide-spreading or ascending branches zigzag for several years, dark green, tomentose and marked with numerous dark red oblong lenticels when they appear in the spring, becoming dark orange-color and very lustrous in the first season and light gray during their second year, and armed with straight or occasionally curved spines, 2 to 3 inches in length, dark chestnut-brown and lustrous and usually pointed toward the base of the branch. Flowers in early June. Fruit ripens and falls early in October.

Borders of streams, where it grows to its largest size, and the rocky banks of ocean sounds and bays. Now known only in southeastern Maine, where it is distributed from the valley of the Penobscot river to the island of Mt. Desert. Orono, *M. L. Fernald*, May 27, 1887; Somesville, *Rand & Redfield*, June 1889; Somesville, *E. Faxon*, June 1890; *E. L. Rand*, Birch hill, Mt.

Desert island, June 1890, Northeast harbor and Southwest harbor, September 1899; Castine, *C. E. Faxon*, September 1889; Bar harbor, *Miss B. Jones*, June and September 1899.

It is a pleasure to commemorate in this handsome and distinct tree the name of Miss Beatrix Jones, the distinguished landscape-gardener, who first made it possible for me to understand its characters.

ARNOLD ARBORETUM,
Jamaica Plain, Mass.